



Read this document carefully before using this device. The guarantee will be expired by damaging of the device if you don't attend to the directions in the user manual. Also we don't accept any compensations for personal injury, material damage or capital disadvantages.

ENDA EC762 UP/DOWN COUNTER

Thank you for choosing ENDA EC762 COUNTER.

- * 72x72mm sized.
- * 2x6 digits display.
- * Easy to use by front panel keypad.
- * Counting up and down with a 2 channel inputs having 90° phase shift.
- * Input frequency can be selectable.
- * Prescaler factor can be adjusted between 0.001 and 9.99999.
- * Decimal point can be adjusted between 1. and 5. digits.
- * Sensor type can be selected as PNP, NPN or Encoder.
- * Single set-points control is made by a relay outputs.
- * Output can be energized continuously or just for a time interval of 0.1 to 999.9 seconds.
- * Selectable functional reset input.
- * Input offset feature.
- * Parameter access protection on 3 levels.
- * Easy connection by removable screw terminal.
- * CE marked according to European Norms.

Order Code : EC762-□□□□□□

1
Supply Voltage
230VAC...230V AC
24VAC.....24V AC
SM.....9-30V DC / 7-24V AC



**RoHS
Compliant**

TECHNICAL SPECIFICATIONS

ENVIRONMENTAL CONDITIONS	
Ambient/storage temperature	0 ... +50°C/-25 ... +70°C (with no icing)
Max. relative humidity	80% up to 31°C decreasing linearly 50% at 40°C.
Rated pollution degree	According to EN 60529 Front panel : IP65 Rear panel : IP20
Height	Max. 2000m
Do not use the device in locations subject to corrosive and flammable gases.	

ELECTRICAL CHARACTERISTICS	
Supply	230V AC +10% -20% or 24V AC ±10%, 50/60Hz or optional 9-30V DC / 7-24V AC ±10% SMPS module.
Power consumption	Max. 7VA
Wiring	2.5mm ² screw-terminal connections
Date retention	EEPROM (Min. 10 years)
EMC	EN 61326-1: 1997, A1: 1998, A2: 2001 (Performance criterion B for the EMC standard)
Safety requirements	EN 61010-1: 2001 (pollution degree 2, overvoltage category II)

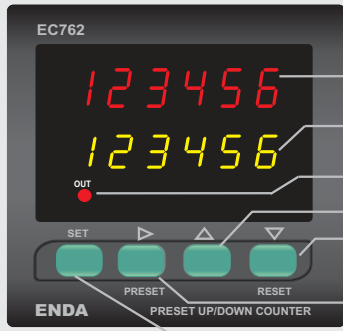
INPUTS	
Count inputs (CP1, CP2)	2 channels (Max. 10kHz, 5V to 30V pulse)
Frequency (Hz)	25, 500, 1000, 2000, 5000, 7500, 10kHz (selectable by programming)
Minimum On ans Off times for pulses	20ms for f=25Hz 1ms for f=500Hz 500µs for f=1kHz 250µs for f=2kHz 100µs for f=5kHz 67µs for f=7,5kHz 50µs for f=10kHz
Reset input	PNP: Positive reset (5V to 30V pulse with adjustable pulse time between 2ms and 50ms) NPN: GND terminal is connected to the RESET IN terminal.

OUTPUTS	
Control output (OUT)	Relay : 250V AC, 2A (for resistive load), NO+NC Open kollektor output (S.S. OUT): Max. 30V DC, 100mA.
Auxiliary power supply	12V DC, Max. 50mA (without regulation)
Life expectancy for relays	Mechanical 30.000.000 operation; Electrical 300.000 operation.
Note : Relay and S.S.OUT outputs are in synchronization . When OUT relay is energized S.S. OUT transistor goes into saturation.	

HOUSING	
Housing type	Suitable for flush-panel mounting according to DIN 43 700.
Dimensions	W72xH72xD97mm
Weight	Approx. 405g (after packing)
Enclosure material	Self extinguishing plastics

While cleaning the device, solvents (thinner, benzene, acid etc.) or corrosive materials must not be used.

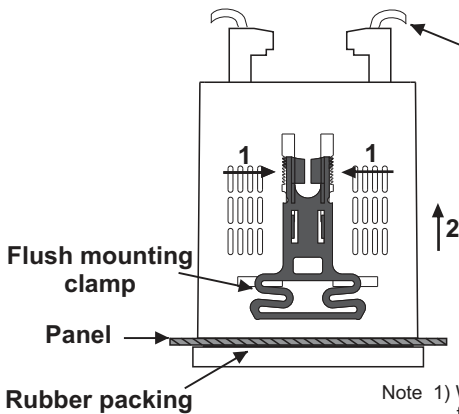
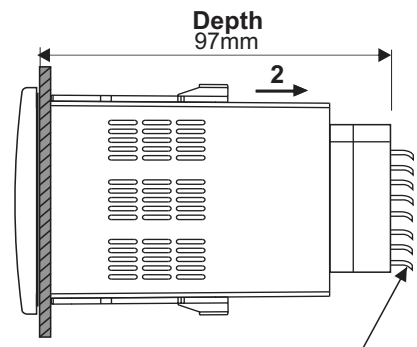
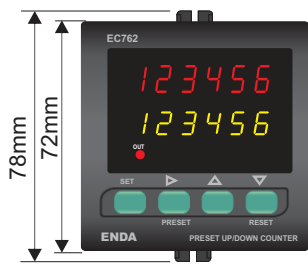
TERMS



- (1) Counting value during in the run mode.
Parameter name or value in the programming mode.
- (2) Preset value in the run mode.
Parameter name, vale or unit in the programming mode.
- (3) Output LED.
- (4) Increment or parameter selection key in the programming mode.
- (5) Reset key in the run mode.
Decrement key in the programming mode.
- (6) Used for selecting preset value in the run mode.
Used for selecting *OPt* *mon* s or parameter to be changed in the programming mode.
- (7) Used for selecting run or programming modes or for adjusting parameters.

(1) Digital display	6 digits, seven segment red LED
(2) Digital display	6 digits, seven segment yellow LED
Character height	Digital display (1) : 9.1mm
	Digital display (2) : 7.1mm
(3) Output LED	Red LED
(4),(5),(6),(7) Keypad	Micro switch

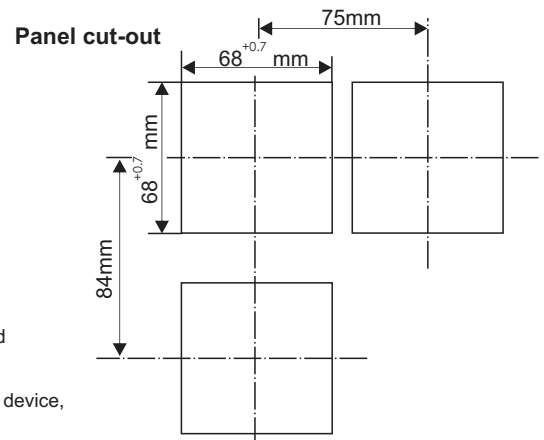
DIMENSIONS



Connection cables

For removing mounting clamps:

- Push the flush-mounting clamp in direction 1 as shown in the figure left.
- Then, pull out the clamp in direction 2.

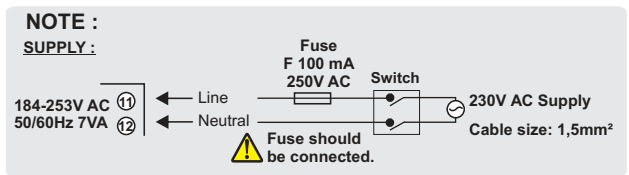
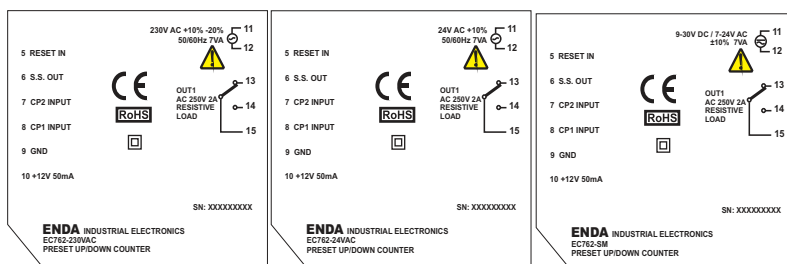


- Note
- 1) While panel mounting, additional distance required for connection cables should be considered.
 - 2) Panel thickness should be maximum 10mm.
 - 3) If there is no 90mm free space at back side of the device, it would be difficult to remove it from the panel.

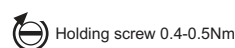
CONNECTION DIAGRAM



ENDA EC762 is intended for installation in control panels. Make sure that the device is used only for intended purpose. The shielding must be grounded on the instrument side. During an installation, all of the cables that are connected to the device must be free of energy. The device must be protected against inadmissible humidity, vibrations, severe soiling and make sure that the operation temperature is not exceeded. All input and output lines that are not connected to the supply network must be laid out as shielded and twisted cables. These cables should not be close to the power cables or components. The installation and electrical connections must be carried on by a qualified staff and must be according to the relevant locally applicable regulations.



- Note :
- 1) Mains supply cords shall meet the requirements of IEC 60227 or IEC 60245.
 - 2) In accordance with the safety regulations, the power supply switch shall bring the identification of the relevant instrument and it should be easily accessible by the operator.

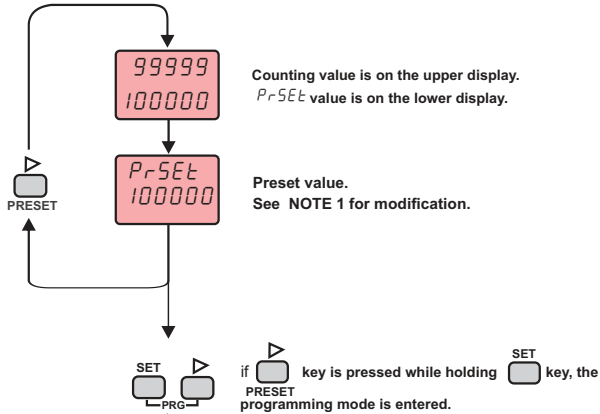


Holding screw 0.4-0.5Nm



Equipment is protected throughout by DOUBLE INSULATION.

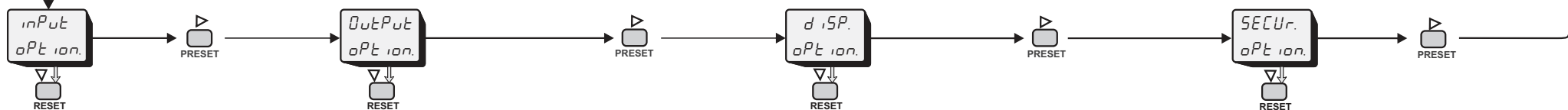
Run mode



PARAMETER TABLE

	CP 1.UP CP2.dn	CP 1.UP CP2.UP	CP 1.UP CP2.Gt	CP 1.UP CP2.d.r.	UP Ph.4	UP.dn Ph.1	UP.dn Ph.2													
input type	Count. dir.	d.rEct	aPPoS.																	
	inPut Frq.	25 HErt.	500 HErt.	1000 HErt.	2000 HErt.	5000 HErt.	7500 HErt.	10000 HErt.												
input type	SEnSor tYPE	nPn	PnP	Encod.																
	rESEt PuLS	0.002 SEcond	0.005 SEcond	0.010 SEcond	0.020 SEcond	0.050 SEcond														
output type	outPut tYPE	ConF.iU. 1	ConF.iU. 2	ConF.iU. 4	ConF.iU. 5	ConF.iU. 6	ConF.iU. 7	ConF.iU. 8	ConF.iU. 9	ConF.iU. 10										
	out t.i.	0000	9999																
dISP. opt ion.	dEc.i. Po int	0	0.0	0.0000	999999												
	dISP. CAL	0	500000																
SECUR. opt ion.	SECUR. code	1111																		
	inP.oPt. SECUR.	nonE	Pr.oG. no	Pr.oG. YEs																
SECUR. opt ion.	Out.oPt. SECUR.	nonE	Pr.oG. no	Pr.oG. YEs																
	dIS.oPt. SECUR.	nonE	Pr.oG. no	Pr.oG. YEs																
SECUR. opt ion.	Count. rESEt	no	PARnEL rESEt	rESEt inPut	rESEt both															
	dEFAUL SEt.	no	YEs																	

if key is pressed while holding key, the PRESET programming mode is entered.



There are seven different input types. A schematic diagram of counting modes according to the input types is at the next page. See NOTE 2 for modification.

Counting direction can be selected *d.rEct.* or *aPPoS.* A schematic diagram of counting directions according to the selected input types is at the next page. See NOTE 2 for modification.

Input frequency can be selected. See NOTE 2 for modification.

Sensor type can be selected. See NOTE 2 for modification.

The minimum pulse duration of the external RESET input can be selected. See NOTE 2 for modification.

There are nine different output types. A schematic diagram of output types is at the next page. See NOTE 2 for modification.

Out energizing time can be adjusted between 0.1 and 999.9 seconds. If it is made 0.0, output is energized continuously when counter reaches *PrSEt* value. See NOTE 1 for modification.

Decimal point can be adjusted between 1. and 5. digits. If desired, decimal point is not included. See NOTE 2 for modification.

Calibration (Prescaler) value can be adjusted between 0.00001 and 9.99999. Counter multiplies the number of pulses by the prescaler value and the result is displayed on the screen. See NOTE 1 for modification.

oFFSEt value can be adjusted between 0 and 500000. It means counter starts counting from the *oFFSEt* value when it is reset. See NOTE 1 for modification.

Access code for entering security option menu. This parameter should be 1111. See NOTE 2 for modification.

nonE = No menu is seen.
Pr.oG. = Menu is seen but can not be programmed.
no = Menu is seen and programming is possible. See NOTE 2 for modification.
YEs

nonE = No menu is seen.
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YEs

nonE = No menu is seen.
Pr.oG. = Menu is seen but can not be programmed.
no = Menu is seen and programming is possible. See NOTE 2 for modification.
YEs

no = Counter can not be reset.
PARnEL rESEt = Counter can be reset by key.
rESEt inPut = Counter can be reset by the RESET input.
rESEt both = Both RESET input and the key can be used for resetting. See NOTE 2 for modification.

PARAMETER MODIFICATION DIAGRAM

NOTE 1 Holding key the value of the selected parameter is seen on the display. While holding key, the value of the selected parameter can be changed by using keys. In order to reset all the digits, first press and hold key. And then, press both and keys together.

NOTE 2 To modify non-numerical parameters, hold key and use keys.

INPUT TYPES

Counter Input Type	direct	opPos
CP1-UP CP2-dn	<p style="text-align: center;">Note: The maximum value of the input frequency can be one half of the selected value ($inPulse.Frq$).</p>	
CP1-UP CP2-UP	<p style="text-align: center;">Note: The maximum value of the input frequency can be one half of the selected value ($inPulse.Frq$).</p>	
CP1-UP CP2-Gt		
CP1-UP CP2-dir		
UP Ph-4	<p style="text-align: center;">Note: The maximum value of the input frequency can be 1/3 of the selected value ($inPulse.Frq$).</p>	
UP-dn Ph-1		
UP-dn Ph-2	<p style="text-align: center;">Note: The maximum value of the input frequency can be 2/3 of the selected value ($inPulse.Frq$).</p>	

NOTE :

- 1) For PNP sensor, counter is triggered at the rising edge of the pulses.
 For NPN sensor counter is triggered at the falling edge of the pulses.
- 2) For NPN sensor, if you select $inPulseType$ CP1.U. CP2.r., above diagram for $Counter.dir$. $direct$ replaces with $Counter.dir$ $OPPO$.



Input frequency should not exceed the values indicated above. Otherwise, counter value will be wrong.

OUTPUT TYPES

	UP COUNTER	DOWN COUNTER	UP / DOWN COUNTER
$ConF_1$	<p style="font-size: small;">$inPulse$ = CP1-UP, CP1-UP, UP $TYPE$ = CP2-UP, CP2-Gt, Ph-4 $Counter.dir$ = direct</p>	<p style="font-size: small;">$inPulse$ = CP1-UP, CP1-UP, UP $TYPE$ = CP2-UP, CP2-Gt, Ph-4 $Counter.dir$ = opPos</p>	<p style="font-size: small;">$inPulse$ = CP1-UP, CP1-UP, UP-dn, UP-dn $TYPE$ = CP2-dn, CP2-dir, Ph-1, Ph-2</p>
$ConF_2$ (HOLD)			
$ConF_3$ (Autoreset)			
$ConF_4$ (Delayed Autoreset)			
$ConF_5$ (Delayed Autoreset and HOLD)			
$ConF_6$ (Delayed Autoreset and HOLD)			
$ConF_7$ (Autoreset and Display hold)			
$ConF_8$	<p style="font-size: small;">$inPulse$ = CP1-UP, CP1-UP, UP-dn, UP-dn $TYPE$ = CP2-dn, CP2-dir, Ph-1, Ph-2</p>		While counter value is equal to preset value, OUT becomes active.
$ConF_9$			While counter value is lower or equal to the preset value, OUT is active.
$ConF_{10}$			While counter value is greater or equal to the preset value, OUT is active.

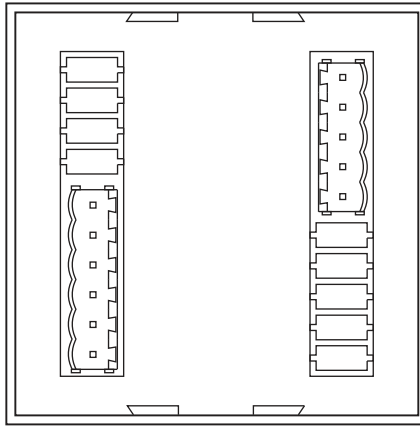


Adjusting out to a value between 0.1 and 999.9 seconds, a pulse output is obtained.

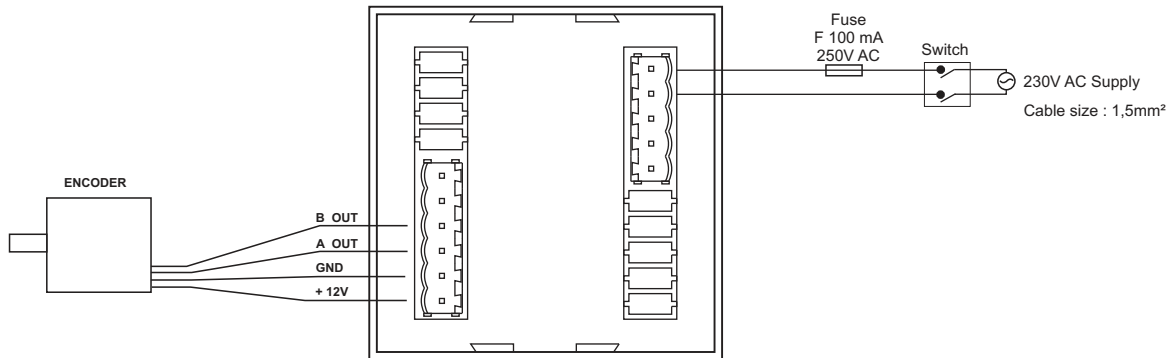
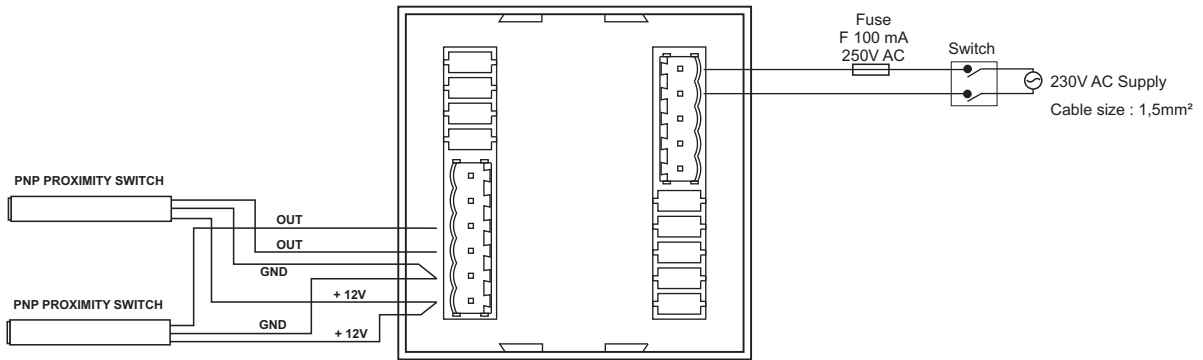
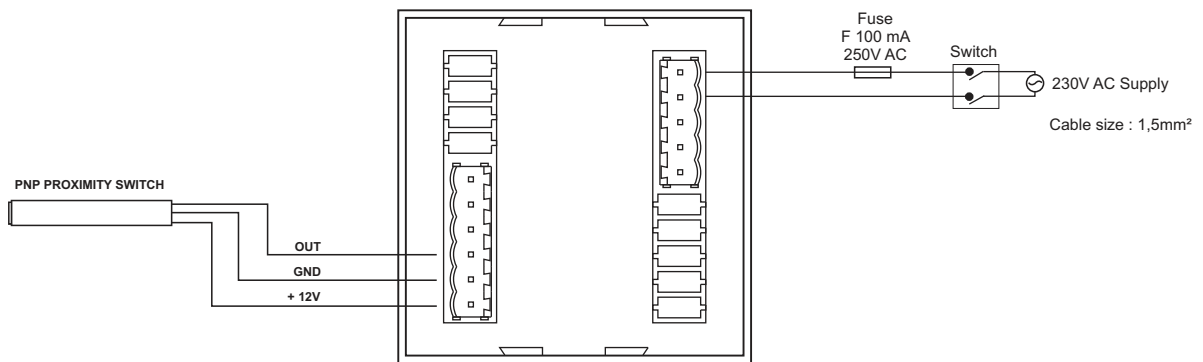


Adjusting out to 0.0, a continuous output is obtained.

TERMINAL CONNECTION



TYPICAL SENSOR CONNECTIONS



NOTE: NPN PROXIMITY SWITCH connection is the same as PNP PROXIMITY SWITCH connection.